

IN THE CLAIMS:

Please cancel claims 1, 2, 11, 14, 15 and 20 without prejudice, amend claims 3-10, 12, 13, 16-19, 21, and 22 and add new claims 23-37 as follows:

1. Cancelled
2. Cancelled
3. (Currently Amended) A hand-off processing apparatus for a down-link telecommunication system, the apparatus comprising:
  - a first coder for coding an inputted bit stream and outputting it a coded bit stream;
  - an interleaver for interleaving the input bit stream and outputting it an interleaved bit stream;
  - a second coder for coding the ~~codeword-interleaved~~ bit stream ~~outputted after being interleaved by~~ from the interleaver and outputting it an interleaved coded bit stream;
  - a first and a second rate matching algorithm processing units for receiving the ~~output bit stream of the first and the second coders and generating outputs of~~ coded bit stream and interleaved coded bit stream and for generating rate matched bit streams having different patterns by using a first and a second rate matching algorithms, respectively; and
  - a first and a second multiplexers for ~~sequentially outputting the codeword-rate matched bit streams outputted after being generated by the first and the second rate matching algorithm processing units to two base stations, respectively.~~
4. (Currently Amended) The apparatus of claim 3, wherein the first and the second rate matching algorithm processing units have different initial offset values ~~to each other.~~
5. (Currently Amended) A hand-off processing apparatus for a mobile communication system, comprising:
  - a first coder for coding an inputted bit stream and outputting it a first coded bit stream;
  - a second coder for coding an inputted bit stream and outputting it a second coded bit stream;
  - a first rate matching algorithm processing unit for receiving ~~an inputted~~ the first coded bit

stream, ~~performs performing~~ rate matching, and generating and outputting new codewords a first rate matched bit streams;

a second rate matching algorithm processing unit for receiving the ~~codeword~~ second coded bit stream ~~coded by the second coder, performs performing~~ rate matching, and generating and outputting new codewords a second rate matched bit streams; and

a first and a second multiplexers for ~~sequentially~~ outputting the ~~codeword~~ bit streams generated and outputted from the first and the second rate matching algorithm processing units matched bit streams to two base stations, respectively.

6. (Currently Amended) The apparatus of claim 5, wherein the first and the second rate matching algorithm processing units have different initial offset values ~~to each other.~~

7. (Currently Amended) A mobile terminal receiver of a telecommunication system, the mobile terminal receiver comprising:

a demultiplexer for receiving and demultiplexing a radio frequency signal transmitted from two base stations ~~and demultiplexing it;~~

an analog receiver for receiving the ~~radio frequency signal~~ demultiplexed by signal from the demultiplexer, converting it the demultiplexed signal to an intermediate frequency signal and amplifying the intermediate frequency signal;

a searching unit for continuously searching a pilot signals transmitted from the two base stations from among the signals received from the analog receiver and computing a signal-to-interference ratio of ~~the~~ each pilot signal;

a base station controller for ~~discriminating~~ determining from which base station the signal searched by the searching unit ~~has been~~ was transmitted by using the computed values signal-to-interference ratio;

a plurality of rake receivers for ~~inputting~~ providing the signals transmitted from the two base stations to a code combiner according to the ~~discrimination~~ determination of the base station controller;

a code combiner for converting the signals from the two ~~inputted two signals to base stations into a plurality of kinds~~ of data streams and ~~outputting the data stream;~~ and

a repeating decoder for receiving, decoding and outputting the plurality of kinds of data streams as a single data stream, ~~decoding and outputting it~~

wherein the code combiner comprises:

a first demultiplexer for classifying the signals transmitted from a first rake receiver

by kinds;

a second demultiplexer for classifying the signals from a second rake receiver by kinds;  
a deinterleaver for deinterleaving and restoring the signals from the second demultiplexer to their original signals;

a first combiner for classifying signals from the deinterleaver and from the first demultiplexer into a single kind of signal; and

a second combiner for receiving and classifying by kinds a predetermined signal from the first demultiplexer and a predetermined signal from the second demultiplexer.

8. (Currently Amended) The mobile terminal receiver of claim 7, wherein the code combiner ~~comprising~~comprises:

a first demultiplexer for classifying and outputting the signals transmitted from ~~one~~ a first rake receiver by kinds ~~to output them~~;

a second demultiplexer for classifying and outputting the signals transmitted from ~~the other~~ a second rake receiver by kinds ~~to output them~~;

a deinterleaver for deinterleaving and restoring at least some of the signals ~~outputted from the second demultiplexer to restore them to their original signals and outputting them~~;

a first combiner for classifying the signals ~~outputted from the deinterleaver and at least some of the kinds of signals~~ from the first demultiplexer ~~by~~ into a single kind of signals ~~and outputted it~~; and

a second combiner for receiving and classifying by kinds signals from the first demultiplexer other than the signals ~~inputted to~~ received by the first combiner ~~among the signals outputted from the first demultiplexer and signals from the second multiplexer other than the signals deinterleaved after being outputted~~ received by the deinterleaver from the second demultiplexer, ~~classifying them by kinds and outputting them~~.

9. (Currently Amended) The mobile terminal receiver of claim 7, wherein the code combiner ~~comprising~~comprises:

a first demultiplexer for classifying the signals ~~transmitted from one~~ a first rake receiver by kinds ~~to output them~~;

a second demultiplexer for classifying the signals ~~transmitted from the other~~ a second rake receiver by kinds ~~to output them~~;

a first combiner for classifying ~~the signals outputted from~~ the second demultiplexer ~~by~~ into a single kind of signals ~~and outputting it~~; and

a second combiner for receiving and classifying by kinds signals from the first demultiplier other than the signals ~~inputted to~~received by the first combiner ~~among the signals outputted from the first demultiplexer~~ and signals from the second demultiplexer other than the signals ~~outputted~~received by the first combiner from the second demultiplexer, ~~classifying them by kinds and outputting them.~~

10. (Currently Amended) The mobile terminal receiver of claim 7, wherein the code combiner ~~comprising~~comprises:

a first demultiplexer for classifying the signals ~~transmitted from one~~a first rake receiver by kinds ~~to output them~~;

a second demultiplexer for classifying the signals ~~transmitted from the other~~ a second rake receiver by kinds ~~to output them~~;

a first combiner for classifying ~~the signals outputted from the second demultiplexer by~~ into a single kind of signals ~~and outputting it~~; and

a second combiner for receiving and classifying by kinds a predetermined signal ~~outputted from~~from the first demultiplexer and a predetermined signal ~~outputted from the second demultiplexer, classifying them by kinds and outputting them.~~

11. (Canceled)

12. (Currently Amended) The mobile terminal receiver of claim 7, wherein the code combiner converts the signal from the two base stations to a first, second and third kind of data stream and the repeating decoder ~~comprising~~comprises:

a first decoder for receiving ~~two of the three signals outputted~~and decoding the first and second data streams from the code combiner ~~and decoding them~~;

a first interleaver for receiving and interleaving the decoded ~~signal~~data stream from the first decoder ~~and interleaving it~~;

a second interleaver for receiving ~~one of~~and interleaving the signal ~~outputted~~first and second data streams from the code combiner ~~and interleaving it~~; and

a second decoder for receiving and decoding the ~~two signals outputted~~data streams from the first and the second interleavers, ~~decoding them~~and the third data stream from the code combiner to generate ~~one signal~~a single data stream; and

a deinterleaver for deinterleaving the signal ~~outputted from the second decoder and inputting it to the first decoder.~~

13. (Currently Amended) The mobile terminal receiver of claim 612, wherein the repeating decoder ~~comprising~~further comprises a deinterleaver for deinterleaving the data stream from the second decoder and inputting the deinterleaved data stream to the first decoder:

~~a first decoder for receiving two of the three signals outputted from the code combiner and decoding them;~~

~~a first interleaver for receiving the decoded signal from the first decoder and interleaving it;~~

~~a second interleaver for receiving one of the signal outputted from the code combiner and interleaving it; and~~

~~a second decoder for receiving the two signals outputted from the first and the second interleavers, decoding them to generate one signal.~~

14. Cancelled

15. Cancelled

16. (Currently Amended) A hand-off processing method for a mobile communication system, the method comprising the steps of:

coding an inputted bit stream to generate a coded bit stream;

interleaving the input bit stream to generate an interleaved bit stream;

coding the interleaved bit stream to generate an interleaved coded bit stream;

performing rate matching at different rates by using different patterns for the codeword the coded bit stream and the interleaved coded bit streams to generate first and second rate matched bit streams; and

sequentially outputting the codeword first and second rate matched bit streams which have been rate matched at different rates, to the two base stations.

17. (Currently Amended) The method of claim 16, wherein, ~~in the step of performing rate matching; is performed with rate matching ratio is the same, and different~~ initial offset values are different.

18. Currently Amended) The method of claim 16, wherein, ~~in the step of performing rate~~

~~matching, one signal is not rate-matched and the other two signals~~ the first and second coded bit streams are rate-matched so such that initial offset values become are one of 2 and 1 or and 1 and 2.

19. (Currently Amended) A hand-off processing method for a mobile communication, the method comprising the steps of:

receiving radio frequency signals transmitted from two base stations, converting them the signals into intermediate frequency (IF) signals and amplifying them the intermediate frequency signals;

continuously searching pilot signals transmitted from two base stations from among the converted and amplified signals and computing the signal-to-interference ratio of the pilot signals;

discriminating-determining from which base stations the pilot signals have been are received and informing the informing two rake receivers of it the determination;

inputting-providing the signal transmitted from the two base stations to a code combiner according to the discrimination-determination;

converting the two signals inputted to the code combiner to one type a plurality of kinds of data streams and outputting them in the code combiner; and

receiving-decoding the plurality of kinds of data streams, decoding it and outputting the a single decoded data stream,

wherein converting the signals transmitted from the two base stations in the code combiner comprises:

classifying the signals transmitted from each rake receiver by kinds;

interleaving the signals classified by kinds and restoring the interleaved signals to their original signals;

deinterleaving the restored signals to a single kind of signals; and

receiving the signals classified by kinds and classifying the received classified signal again by kinds.

20. (Canceled)

21. (Currently Amended) The method of claim 19, wherein ~~the step of~~ the code

combiner converts the signal from the base stations to first, second and third kinds of data streams and decoding and outputting the plurality of kinds of data streams, comprising the steps of comprises:

~~receiving two of~~decoding the three signals outputtedfirst and second data streams from the code combiner ~~and decoding them;~~

~~receiving interleaving the first decoded signals and interleaving them~~data stream to generate an interleaved decoded data stream;

~~receiving interleaving one of the signals outputted~~first and second data streams from the code combiner ~~and interleaving it to generate an interleaved undecoded data stream; and~~

~~receiving decoding the two interleaved signals-~~ data streams and the one signal ~~outputted third data stream~~ from the code combiner, ~~decoding them and outputting one signal to generate a single data stream;~~

~~deinterleaving the one decoded signal and outputting it; and~~

~~receiving the one decoded signal and the signal outputted from the code combiner and decoding them again.~~

22. (Currently Amended) The method of claim 1921, wherein ~~the step of decoding and outputting the data streams comprising the steps of~~further comprises:

~~receiving two of the three signals outputted from the code combiner and decoding them;~~

~~receiving the decoded signals and interleaving them;~~

~~receiving one of the signals outputted from the code combiner and interleaving it;~~

~~receiving the two interleaved signals and the one signal outputted from the code combiner, decoding them and outputted one signal;~~

deinterleaving the single data stream; and

~~receiving decoding the one decoded signal~~ deinterleaved single data stream and the signal ~~outputted~~ first and second data streams from the code combiner ~~and decoding them again.~~

23. (New) The method of claim 16, wherein rate matching is performed for the input bit stream and interleaved bit stream.

24. (New) A hand off processing apparatus for a mobile communication system, comprising:

a coder adapted to code an input bit stream during handoff such that a first coded bit stream and a second coded bit stream are generated, the first coded bit stream different from the second coded bit stream and wherein the coder is further adapted to generate the first coded bit stream using a first pattern for rate matching first intermediate coded input bit stream bits (X), first intermediate interleaved-coded input bit stream bits (X'), second intermediate coded input bit stream bits (Y), and second intermediate interleaved-coded input bit stream bits (Z) and to generate the second coded bit stream using a second pattern for rate matching first intermediate coded input bit stream bits (X), first intermediate interleaved-coded input bit stream bits (X'), second intermediate coded input bit stream bits (Y), and second intermediate interleaved-coded input bit stream bits (Z); and

a transmitter adapted to transmit one of the first coded bit stream and the second coded bit stream to a mobile station.

25. (New) The hand off processing apparatus of claim 24, wherein the first pattern and the second pattern are different.

26. (New) The hand off processing apparatus of claim 24, wherein the first pattern and the second pattern are each determined by using initial values.

27. (New) The hand off processing apparatus of claim 24, wherein the first pattern is determined by using different initial values to determine puncturing position.

28. (New) The hand off processing apparatus of claim 24, wherein the second pattern is determined by using different initial values to determine puncturing position.

29. (New) The hand off processing apparatus of claim 24, wherein the coder further comprises:

a code generator adapted to generate a base station code identifying for which of a plurality of base stations each of the first coded bit stream and the second coded bit stream is intended; and

a multiplier adapted to multiply each of the first coded bit stream and the second coded bit stream by the corresponding base station code.



30. (New) A method for performing hand off in a mobile communication system, the method comprising:

coding an input bit stream and generating a first coded bit stream and a second coded bit stream, the first coded bit stream different from the second coded bit stream and wherein the first coded bit stream is generated using a first pattern to rate match first intermediate coded input bit stream bits (X), first intermediate interleaved-coded input bit stream bits (X'), second intermediate coded input bit stream bits (Y), and second intermediate interleaved-coded input bit stream bits (Z) and the second coded bit stream is generated using a second pattern to rate match first intermediate coded input bit stream bits (X), first intermediate interleaved-coded input bit stream bits (X'), second intermediate coded input bit stream bits (Y), and second intermediate interleaved-coded input bit stream bits (Z); and

transmitting one of the first coded bit stream and the second coded bit to a mobile station.

31. (New) The method of claim 30, wherein the first pattern and the second pattern are different.

32. (New) The method of claim 30, further comprising determining the first pattern and the second pattern by using initial values.

33. (New) The method of claim 30, further comprising determining the first pattern by using different initial values to determine puncturing position.

34. (New) The method of claim 30, further comprising determining the second pattern by using different initial values to determine puncturing position.

35. (New) A mobile terminal receiver of a telecommunication system, the mobile terminal receiver comprising:

a code combiner for combining a first base station signal and a second base station signal and providing a combined output; and

A decoder for decoding the combined output;

wherein the combiner comprises:

a first demultiplexer for demultiplexing the first base station signal;

a second demultiplexer for demultiplexing the second base station signal;

a deinterleaver for deinterleaving a predetermined output of the second demultiplexer;  
a first combiner for combining an output of the deinterleaver and a predetermined output of the first demultiplexer; and

a second combiner for combining an output of the first demultiplexer other than the predetermined output of the first demultiplexer and an output of the second demultiplexer other than the predetermined output of the second demultiplexer.

36. (New) A hand-off processing apparatus for a mobile communication system, comprising:

a first coder for coding an input bit stream and outputting a first coded bit stream;  
a second coder for coding an input bit stream and outputting a second coded bit stream;  
a first rate matching algorithm processing unit for receiving the first coded bit stream, performing rate matching, and generating a first rate matched bit stream;  
a second rate matching algorithm processing unit for receiving the second coded bit stream, performing rate matching, and generating a second rate matched bit stream; and  
first and second multiplexers for outputting the first and the second rate matched bit streams;

wherein the first and the second rate matching algorithm processing units have different initial offset values.

37. (New) A hand-off processing method for a mobile communication system, the method comprising:

coding an input bit stream to generate a coded bit stream;  
interleaving the input bit stream to generate an interleaved bit stream;  
coding the interleaved bit stream to generate an interleaved coded bit stream;  
performing rate matching by using different patterns for the coded bit stream and the interleaved coded bit stream to generate first and second rate matched bit streams; and  
outputting the first and second rate matched bit streams;  
wherein rate matching is performed with different initial offset values.